

EPO - DG ;  
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(108)CLAIMS

1. A run-flat device (13) for fitting on the outer circumference of a wheel (11) inside an inflatable tyre, said device (13) comprises an annular ring (14) made up of a plurality of arcuate segments (15) having a flange at each end that overlaps circumferentially the corresponding flanges (26, 27) of adjacent segments, which flanges are interconnected (20, 21) by clamping means (23) equally spaced around the ring (14) that imparts to each segment (15) a circumferential clamping force and an axial clamping force to urge the segments (15) circumferentially and axially towards each other wherein the clamping means comprises a first and second clamping bolts which pass through a pair of spaced holes formed in the adjacent flanges characterised in that there further comprises a retaining plate having two captive nuts mounted thereon, for securing the first and second clamping bolts and to prevent lateral twisting of the flanges.
2. A run-flat device according to claim 1 wherein the clamping means (23) further comprises a slot (28) provided in one of the flanges at one end of each segment that includes an inclined surface (29) that faces away from the immediately adjacent segment (15), a wedge (31) provided in the slot (28), said wedge (31) having an inclined surface (32) that contacts the inclined surface (29) of the slot (28), and having a hole (31(a)) that aligns with a first hole (33) of the pair of spaced holes (33, 34) in the flanges (26, 27), and a first clamping bolt (23(a)) that passes through the first hole (33) of the pairs of holes (33, 34) and the hole (31(a)) in the wedge (31) whereby tightening of the first bolt (23(a)) causes the wedge (31) to urge the segments (15) towards each other circumferentially, and the clamping means (23) further includes a second bolt (23(b)) substantially parallel to the first bolt (23(a)), said second bolt (23(b)) passing through the second hole (34) of the pair of holes (33, 34) in the flanges (26, 27) and through a clamping plate (38) in contact with a side face of the segment (15) whereby

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tightening of the second bolt (23(b)) clamps the flanges (26, 27) of the segments (15) together axially, and the combined clamping effect of the two bolts (12(a), 12(b)) restricts pivotal movement of the segments (15) relative to each other.

3. A run-flat device as claimed in claim 2 wherein the captive nuts are located within the first and second holes (33, 34).
4. A run-flat device according to any of claims 1 to 3 wherein there is provided a split inner sleeve (16) for fitment to the rim of the wheel (11) and onto the outer circumference of which the segments (15) sit.
5. A run-flat device according to claim 4 wherein the inner circumference of the inner sleeve (16) is profiled to match the profile of the outer circumference of the wheel (11).
6. A run-flat device according to claim 4 or claim 5 wherein the outer circumference of the inner sleeve (16) has a recess (41), and each segment (15) has a flange (42) on its inner circumferential surface that engages in the recess (41) on the inner sleeve (16).
7. A run-flat device according to any one of claims 2 to 6 wherein the inner sleeve (16) comprises a central band (17) and two side bands (18) made of a material that is more resilient than the material of the central band (17).
8. A run-flat device according to claim 7 wherein the central band (17) is made of nylon.
9. A run-flat device according to claim 7 or claim 8 wherein the side bands (18) are made of polyurethane.

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10. A run-flat device according to any one of the preceding claims wherein the segments (15) are identical in shape.
11. A run flat device according to any one of the claims 2 to 10 wherein a shear pin (43) is provided between the inner sleeve (16) and each of the segments (15) to resist circumferential movement of the sleeves relative to the inner sleeve(16) during normal running of the wheel.

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